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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/903,616	07/13/2001	Nobuo Kawada	0171-0766P-SP	2188
2292	7590	10/28/2003	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			MARKHAM, WESLEY D	
			ART UNIT	PAPER NUMBER

1762

DATE MAILED: 10/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

### Office Action Summary

**Application No.**

09/903,616

**Applicant(s)**

KAWADA ET AL.

**Examiner**

Wesley D Markham

**Art Unit**

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 total.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

### **DETAILED ACTION**

1. Claims 1 – 3 are currently pending in U.S. Application Serial No. 09/903,616, and an Office Action on the merits follows.

#### ***Priority***

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d) (i.e., the certified copy of Japanese patent application 2000-212798, filed on 7/13/2000), which papers have been placed of record in the file.

#### ***Information Disclosure Statement***

3. The IDSs submitted by the applicant on 9/24/2001 and 1/7/2002 are acknowledged, and the examiner has considered the information / documents listed thereon.

#### ***Specification***

4. The use of the trademark ARONIX M113 has been noted in this application (see page 14, lines 9 – 10, of the specification). It should be capitalized wherever it appears and be accompanied by the generic terminology. Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.
5. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following title is

suggested: "Manufacture of optical fiber and optical fiber tape utilizing electron beam curing".

### ***Claim Observations***

6. The examiner notes that Claims 1 – 3 all recite, "said exposure to electron beams being done under conditions including..." The term "including" in the aforementioned phrase has been interpreted by the examiner to be equivalent to "comprising" (i.e., open language).

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1 – 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vandeberg et al. (USPN 6,246,824 B1) in view of either Kinaga et al. (USPN 5,182,786) or Shimazaki et al. (USPN 6,463,921 B2).
10. Regarding independent Claim 1, Vandeberg et al. teaches a method of manufacturing an optical fiber (Abstract) comprising the steps of applying at least one electron beam-curable resin composition to a bare optical fiber (e.g., applying an “inner primary coating”) (Col.1, lines 16 – 17, Col.3, lines 57 – 62, and Col.4, lines 7 – 14), and exposing the resin composition to electron beams to cure the resin composition, thereby producing an optical fiber having one or more resin coatings (Col.1, lines 11 – 14, Col.2, lines 3 – 31, Col.3, lines 8 – 62, Col.4, lines 7 – 14, and Examples 1 – 3), the electron beam-curable resin composition comprising (A) 10 to 90% by weight of a urethane (meth)acrylate oligomer and (B) 90 to 10% by weight of a reactive diluent (Col.4, lines 58 – 66, Col.5, lines 5 – 25, Col.7, lines 3 – 13, and Example II), and the exposure to electron beams being done under conditions including (a) an electron beam acceleration voltage of 50 to 150 kV (Col.2, lines 2 – 31 and 66 – 67, and Col.3, lines 1 – 4), (b) a distance of 0.5 mm to less than 10 mm between an electron beam window of an electron beam irradiating unit and the surface of the optical fiber (Col.3, lines 50 – 54), (c) an inert gas atmosphere under atmospheric pressure (Col.4, lines 4 – 5, and Col.7, lines 51 – 53), and (e) at least two directions of irradiation to the optical fiber (Col.3, lines 26 – 30). Vandeberg et al. does not explicitly teach that the exposure to electron beams is done under an

atmosphere of nitrogen or helium having an oxygen concentration of up to 1,000 ppm in the atmosphere. However, as noted above, Vandeberg et al. does teach that the exposure to electron beams is done in an "inert gas" atmosphere in general (Col.4, lines 4 – 5). Kinaga et al. teaches that, in the art of electron beam-curing coating compositions applied to optical fibers, it was known at the time of the applicant's invention to preferably electron-beam cure the coatings in an inert gas atmosphere, such as in an atmosphere of nitrogen gas (Abstract, Col.5, lines 5 – 17, and Col.7, lines 13 – 20). Therefore, it would have been obvious to one of ordinary skill in the art to electron-beam cure the coatings of Vandeberg et al. in an atmosphere of nitrogen gas, as taught by Kinaga et al., with the reasonable expectation of successfully and advantageously curing the coatings in an inert gas atmosphere, as desired by Vandeberg et al., specifically in an atmosphere of an inert gas such as nitrogen that is well-known in the art of electron beam-curing processes (i.e., utilizing a specific inert gas – nitrogen – out of the broader genus of inert gases taught generally by Vandeberg et al.) Further, since both Vandeberg et al. and Kinaga et al. desire to cure the coatings in an inert gas atmosphere and do not mention that any oxygen gas at all is present in the atmosphere, it would have been obvious to one of ordinary skill in the art to perform the curing process in an atmosphere having essentially no oxygen gas (i.e., less than 1,000 ppm, as claimed by the applicant) so that the atmosphere is truly an inert gas atmosphere, as desired by the prior art references (i.e., does not contain a reactive gas such as oxygen). Shimazaki et al. teaches that, in the art of electron beam curing resins such as those

generally used to coat optical fibers, it is desirable to cure the resin within a nitrogen atmosphere or an oxygen reduced atmosphere in order to achieve stable polymerization of the electron beam curing resin (Col.5, lines 39 – 43, and Col.13, lines 14 – 24 and 59 – 63). Therefore, it would have been obvious to one of ordinary skill in the art to electron-beam cure the coatings of Vandeberg et al. in an atmosphere of nitrogen gas, as taught by Shimazaki et al., with the reasonable expectation of (1) success, as Vandeberg et al. teaches electron beam curing in an inert gas atmosphere in general, and Shimazaki et al. teaches a specific inert gas – nitrogen – that can be used as the atmosphere in an electron beam curing process, and (2) obtaining the benefits of using a nitrogen gas atmosphere during the curing process, such as achieving stable polymerization of the coating, as taught by Shimazaki et al. Additionally, since Shimazaki et al. also teaches that an “oxygen reduced atmosphere” is desirable during the electron beam curing process, it would have been obvious to one of ordinary skill in the art to minimize the amount of oxygen in the curing atmosphere (e.g., to below 1,000 ppm, as claimed by the applicant) with the reasonable expectation of successfully and advantageously achieving stable polymerization of the electron beam curable coating in an inert gas atmosphere such as nitrogen. Regarding independent Claim 2, this claim is identical to independent Claim 1 (which has been discussed at length above), except that Claim 2 requires manufacturing a multilayer coated optical fiber by applying the electron beam-curable resin composition to an optical fiber having one or more resin coatings, and electron beam curing the resin composition to produce the multilayer

coated optical fiber. This limitation is taught by Vandeberg et al. (Col.1, lines 16 – 22, Col.3, lines 55 – 62, Col.4, lines 8 – 15, Col.7, lines 3 – 13, and the “outer primary coating” description in Example II). Regarding independent Claim 3, this claim is identical to independent Claim 1 (which has been discussed at length above), except that Claim 3 requires (1) manufacturing an optical fiber tape by applying the electron beam-curable resin composition to a bundle of optical fibers, and electron beam curing the resin composition to produce a resin-bound optical fiber tape, and (2) an electron beam acceleration voltage of 100 to 190 kV. These limitations are taught by Vandeberg et al. (Col.1, lines 22 – 31, Col.2, lines 15 – 31, Col.3, lines 30 – 33, Col.4, lines 15 – 23, Col.6, lines 40 – 59, and Col.7, lines 14 – 24).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Johnson et al. (USPN 3,660,143) teaches electron beam-curing a resin in either a helium atmosphere or a nitrogen atmosphere. Both Kimura et al. (USPN 4,388,093) and Nagasaki et al. (USPN 4,540,597) teach coating optical fibers with a resin and then curing the resin by using electron beams.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley D Markham whose telephone number is (703) 308-7557. The examiner can normally be reached on Monday - Friday, 8:00 AM to 4:30 PM.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (703) 308-2333. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



WDM

Wesley D Markham  
Examiner  
Art Unit 1762



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